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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,028	09/12/2003	Stephen W. Bedell	YOR920030203US1 (16694)	9297
23389	7590	08/24/2005	EXAMINER	
SCULLY SCOTT MURPHY & PRESSER, PC 400 GARDEN CITY PLAZA SUITE 300 GARDEN CITY, NY 11530			WYSZOMIERSKI, GEORGE P	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/662,028

Applicant(s)

BEDELL ET AL.

Examiner

George P. Wyszomierski

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 10-36 is/are rejected.
- 7) ☒ Claim(s) 2-9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08/15/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

Art Unit: 1742

1. Claim 1 is objected to because, in line 4 of this claim, it appears that the word "one" should be deleted.
2. Claims 10-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear whether the annealing step defined in claims 10 and 15 is the same as the annealing step recited in lines 5-6 of independent claim 1, or if these claims are defining a separate, additional annealing step. Claims 11-14 and 16-19 are included in this rejection as they depend from claims 10 and 15, respectively.
3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
4. Claims 1, 20-22, 24, 25 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Huang et al. (U.S. patent 6,812,116).

With reference to Fig. 4A of Huang, the prior art discloses providing a Si-containing substrate having a hole rich region and a Ge-containing layer thereon. Huang discloses at column 3, lines 20-27 forming a porous region therein by anodizing using an HF-containing solution at a current density as recited in instant claim 22. Huang column 4, lines 15-22

Art Unit: 1742

discloses annealing to achieve a relaxed SiGe-on-insulator structure. Huang discloses forming a cap layer comprising Si on this structure; see layer 18 of Huang Fig. 4A. Thus, all aspects of the claimed invention are held to be fully met by Huang et al.

5. Claims 1, 20, 21, 26, 29-31 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Notsu et al. (U.S. Patent 6,828,214).

Notsu discloses providing a Si substrate having a region containing holes and a Ge containing layer on the substrate, forming a porous structure by anodizing using a solution containing HF (Notsu column 11, lines 22-26), and thermally oxidizing at a temperature within the range of instant claim 29 to form a surface oxide (Notsu column 12, lines 47-61). With respect to instant claim 36, the examiner is considering whatever amount of p-type dopant that may be present in the starting Si substrate to be "high", in accord with the instant claim. Thus, all aspects of the claimed invention are held to be fully disclosed by Notsu et al.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 23, 26-31, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al.

The Huang patent, discussed in item no. 4 supra, does not specify some of the parameters as recited in the instant claims. However, the claimed invention cannot be considered to be patentably distinguishable from the Huang disclosure because:

Art Unit: 1742

a) With respect to instant claim 23, the anodization process of Huang, being performed under substantially the same conditions as that of the present invention, would be expected to result in a porosity level as presently claimed.

b) With respect to instant claims 26-31, if one's intent is to thermally oxidize a substance, it is axiomatic that one would want to use an oxygen-containing gas for this purpose. The most readily available such gas would be air, as recited in claim 28. The oxidizing step, by definition, would result in a "surface oxide or "thermal oxide" being present, as recited in claims 30 and 31. Finally, with respect to claim 29, one of ordinary skill in the art would have determined an appropriate temperature range in which to carry out the heat treatment of the prior art, and the range as claimed is well within that as generally known in the art.

c) With respect to instant claims 33 and 34, while Huang does not specify the geometry of the hole-rich regions, performing the Huang process upon materials having the geometry of these regions as set forth in the instant claims would fall within the purview of the process as described by Huang.

d) With respect to instant claim 35, the examiner's position is that performing a series of known steps any given number of times, to achieve nothing more than a cumulative and predictable effect of those steps, cannot define a patentable process.

Thus, a prima facie case of obviousness is established between the disclosure of Huang et al. and the presently claimed invention.

8. Claims 22-25, 27, 28, and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Notsu et al.

The prior art does not specifically disclose some of the parameters as recited in the instant claims. However, the claimed invention cannot be said to be patentably distinct from the Notsu disclosure because:

a) With respect to instant claim 22, the current density range as presently claimed is a rather broad range which would encompass the majority of anodizing processes. It is thus a reasonable assumption that the anodizing step of Notsu utilizes a current density within the presently claimed range.

b) With respect to instant claims 24 and 25, Notsu column 12, lines 15-17 indicates that steps as presently claimed would fall within the purview of the process as disclosed by Notsu.

c) With respect to instant claim 32, Notsu column 12, line 65 thru column 13, line 5 indicates that a diffusion step may take place after the oxidation step. This would result in a process as defined in the present claim.

d) With respect to instant claims 23, 27, 28, 33, 34 and 35, the remarks made in item 7 *supra* apply equally as well with respect to the Notsu reference.

Consequently, a *prima facie* case of obviousness is established between the disclosure of Notsu et al. and the presently claimed invention.

9. Claims 2-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and claims 10-19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art does not disclose or suggest a process as defined in instant claims 2, 3, 7,

Art Unit: 1742


or 8. Thus, these claims and any claims dependent thereon are held to define patentable subject matter.

10. The remainder of the art cited on the attached PTO-892 and 1449 forms is of interest. This art is held to be no more relevant to the claimed invention than the art as applied in the rejections, supra.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (571) 272-1252. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (571) 272-1244. Effective July 15, 2005, all patent application related correspondence transmitted by facsimile must be directed to the new central facsimile number, (571)-273-8300. This new Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
GEORGE WYSZOMIERSKI  
PRIMARY EXAMINER  
GROUP 1700

GPW  
August 19, 2005